

Getting Evidence into Clinical Practice: Critically Appraised Topic Group (CAT Group)

Specific Question:

In adults with anterior knee pain is the addition of foot orthoses to knee exercises more effective compared to no foot orthoses?

Clinical bottom line



There is insufficient evidence to say with confidence that foot orthoses combined with knee exercises is more effective compared to no foot orthoses. There is one well designed RCT that has shown a combination of foot specific exercises and foot orthoses combined with standard knee targeted exercises improves pain at four months compared to standard knee targeted exercises alone.

Standard practice remains unchanged. However, clinicians identifying patients that fit the subpopulation category of excessive calcaneal eversion (+6 degrees) are advised to discuss this treatment with patients, obtain informed consent and audit their results to obtain evidence on patient feedback and experience.

Why is this important?

There are several published best practice guides which advise that foot orthoses have benefit for patients with anterior knee pain conditions such as patellofemoral knee pain. The group was interested in exploring this question to measure the benefit of orthoses in the knee pain population group and explore evidence that might exist to justify NHS referrals for this form of treatment.

Search timeframe (2016 - 2021)

Inclusion Criteria

	Description	Search terms
Population and Setting	Adults over 16 years	Anterior knee pain Patella-osteoarthritis Patellofemoral knee pains PFKP Exclusion: fracture/inflammatory arthritis/cancer/previous

		surgery/tibiofemoral knee pain/ tibiofemoral-osteoarthritis / meniscus/ meniscus-tear / meniscus-injury
Intervention or Exposure	Orthoses	Orthoses Orthosis Bespoke Off the shelf Insole Foot support Medial wedge
Comparison, if any	Exercise	Physio Usual care Physiotherapy Exercise Weight bearing exercise Rehabilitation Vastus medius oblique Vastus medius muscle Isokinetic exercises Isometric exercises
Outcomes of interest	Pain	
Types of studies	SR RCT	

Routine Databases Searched

Cochrane Systematic Review, Medline, Cinahl and Pub med

Date of search March 2022

Results of the search

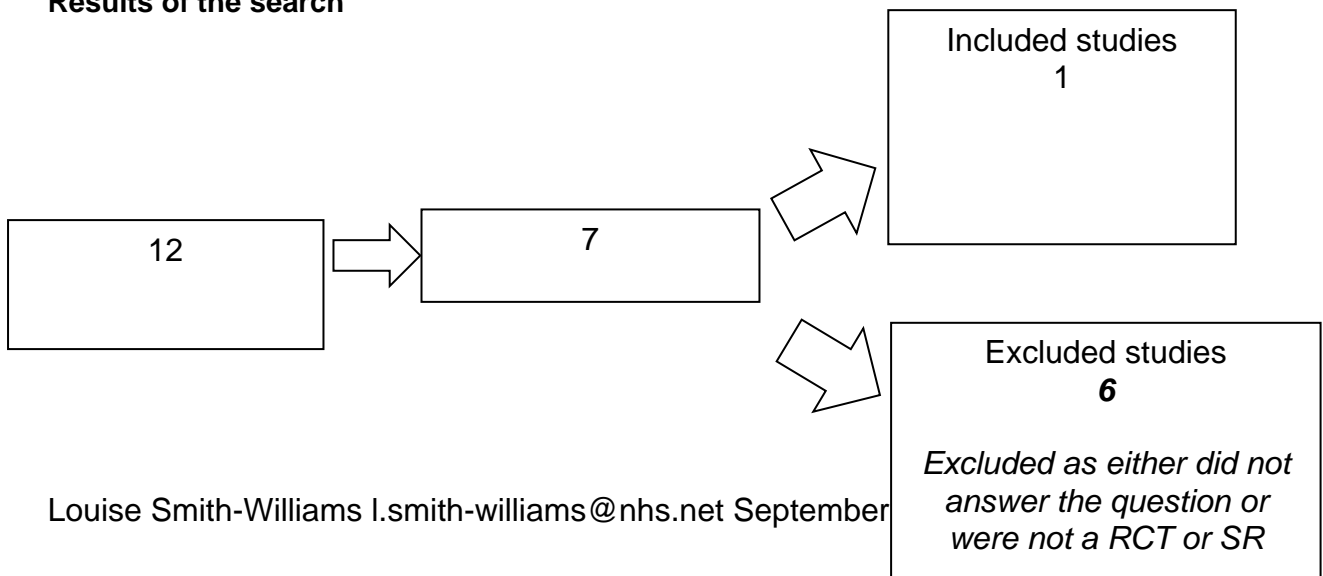


Table 1- Detail of included studies

First Author, year and type of study	Population and setting	Intervention or exposure tested	Study results	Assessment of quality and comments
<p><i>Molgaard et al, 2018</i></p> <p>RCT</p>	<p>Between 18 & 60 years of age</p> <p>Anterior or retropatellar pain for more than 12 weeks</p> <p>Excessive calcaneal eversion in relaxed bilateral standing greater than 6 degrees</p> <p>Pain elicited by 2 of the following 4 tests i) isometric muscle contraction with slight knee bend ii) palpation of the patellofemoral joint line iii) patellar compression against the femoral bone iv) active resisted knee extension</p> <p>Able and motivated to</p>	<p>Participants randomly allocated to the control group (CG) receiving standard knee targeted exercises or intervention group (IG) receiving standard knee targeted exercises, combined with foot targeted exercises and foot orthoses.</p>	<p>The addition of foot targeted exercises and foot orthoses for 12 weeks was more effective than knee targeted exercises alone in individuals with patellofemoral pain. The effect was apparent after 4 months, but not significantly different after 12 months.</p>	<p>Good quality trial.</p> <p>Small numbers N=40</p> <p>The trial addressed a clearly focused issue.</p> <p>Randomisation was managed by an independent secretary, allocation was sealed in opaque and consecutively numbered envelopes, the physiotherapist responsible for collecting outcome measures at follow up was blinded to the randomisations.</p> <p>All patients who entered the trial were properly accounted for.</p> <p>The groups were similar at baseline and treated similarly with exception of the intervention.</p>

	<p>complete the study</p> <p><i>Where was it undertaken?</i></p> <p>Denmark</p> <p>Undertaken in secondary care within a Department of Physiotherapy and Occupational Therapy</p>			<p>The outcome relevant to this CAT question was the primary outcome being measured; Pain</p> <p>The Intervention Group achieved a larger improvement in the KOOS pain score (78) versus the CG (69), a 8.9 difference but not quite reaching the 10 point threshold set by the researchers at the start of the study.</p> <p>The difference still existed at 12 months but at a lower value classed as no longer significantly different (IG 79 /CG 74)</p> <p>Authors publish a confidence interval of 95% and number needed to treat of 3 – for every 3 patients treated suggest that one extra successful outcome for every 3 patients would occur.</p> <p>The result could be applied to a local population as specific characteristics</p>
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				<p>relevant to a therapy clinic (individuals with excessive calcaneal eversion) can be identified and patient can be offered informed choice.</p> <p>A point to make - the IG received foot targeted exercises AND orthoses so which dimension is responsible for the improvement is not clear. Is it the combination of foot specific exercises AND the orthoses or one of the other? The authors raise this point.</p>
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Summary

The addition of foot targeted exercises and foot orthoses for 12 weeks was more effective than knee targeted exercises alone in individuals with patellofemoral pain. The effect was apparent after 4 months, but not significantly different after 12 months.

Implications for Practice/research

There is evidence from a small well-designed RCT that foot orthoses and targeted foot exercises add value in the management of anterior knee pain in a specific population group. This specific population group are individuals with excessive calcaneal eversion.

The research suggests this may accelerate improvements in knee pain in the short term (for example four months) but have similar outcomes at 12 months.

However, the research does not separate the value of foot orthoses from foot targeted exercises and so it is not clear which component or in combination produces the KOOS improvements.

Further research is required exploring the individual effects of foot targeted exercise or foot orthoses on this sub population group with anterior knee pain.

What would you tweet? (140 characters)

There is some evidence that foot orthoses, and foot and knee targeted exercise add benefit in a subpopulation group with anterior knee pain and excessive calcaneal eversion. Please be mindful that numbers in the study were small and there is lack of clarity regarding the benefits of foot targeted exercise or orthoses on the improvement in the KOOS score.

Practitioners using this combination approach are advised to inform their patients prior to commencing this treatment so that informed consent can be obtained, and practitioners are encouraged to audit their results to obtain evidence on patient feedback and experience.

References

[Foot exercises and foot orthoses are more effective than knee focused exercises in individuals with patellofemoral pain - PubMed \(nih.gov\)](#)